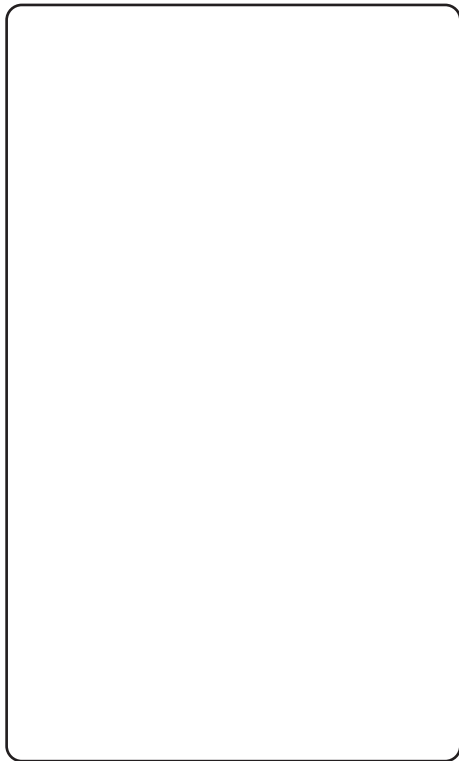
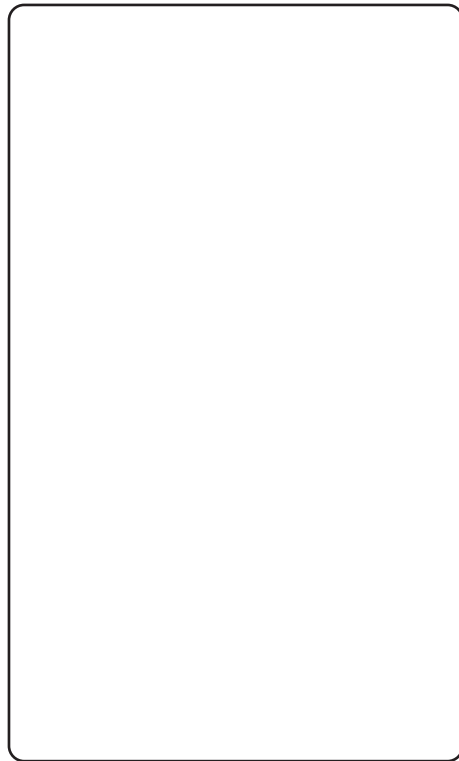


Selection Sort

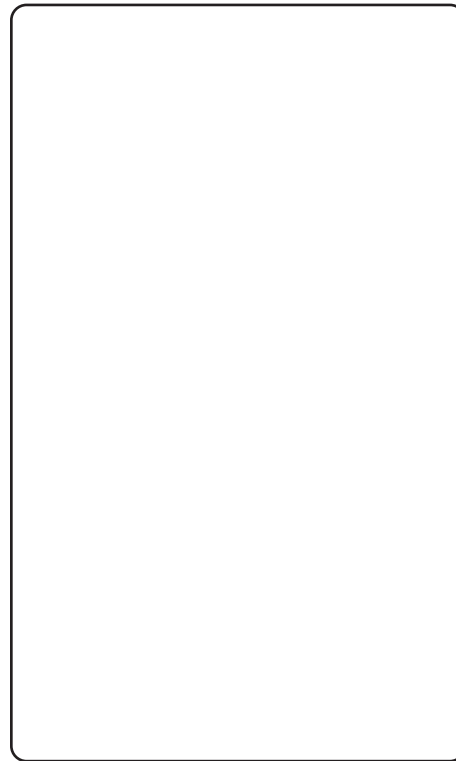
```
repeat
  move the top input card to the lowest card
  repeat
    if the top input card is lower than the lowest card
      then swap the top input card and the lowest card
    move the top input card to the discard pile
  until the input deck is empty
  move the lowest card to the output deck
  move the discard pile to the input deck
until the input deck is empty
```



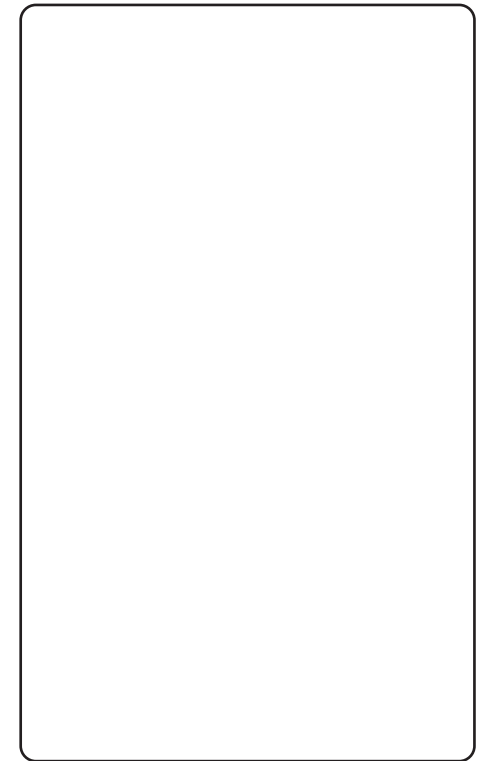
input deck
(face up)



lowest card
(face up)



discard pile
(face down)



output deck
(face down)

Insertion Sort

repeat

move the top input card to the insert card

move the output deck to the working pile

repeat

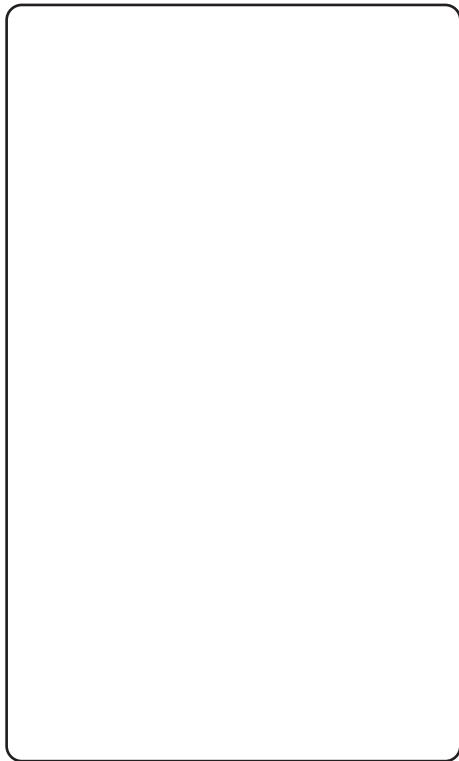
if the insert card is lower than the top of the working pile

then move the insert card to the output deck

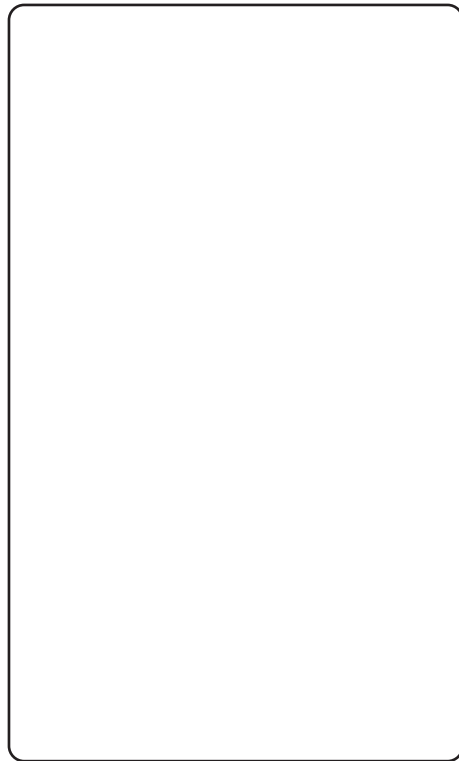
move the top of the working pile to the output deck

until the working pile is empty

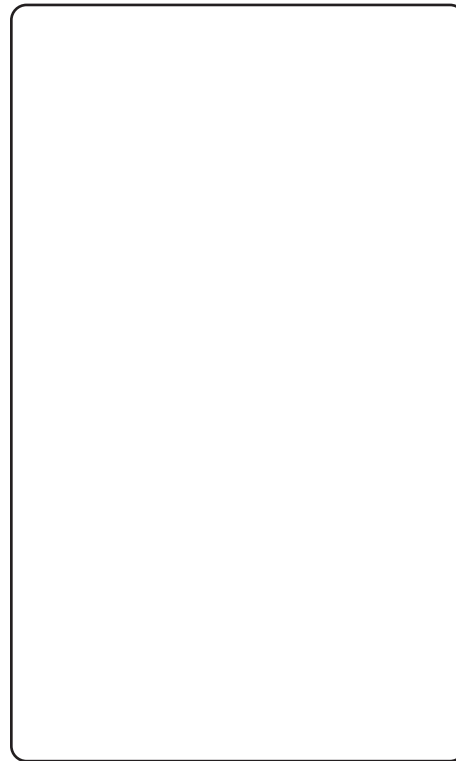
until the input deck is empty



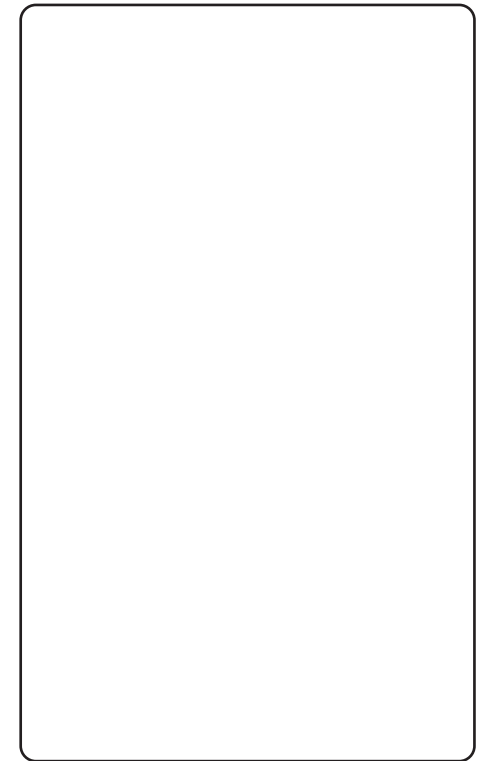
input deck
(face up)



insert card
(face up)



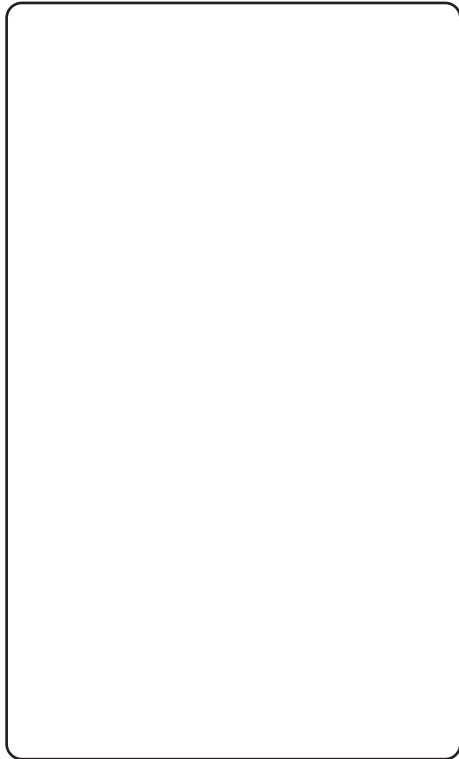
working pile
(face up)



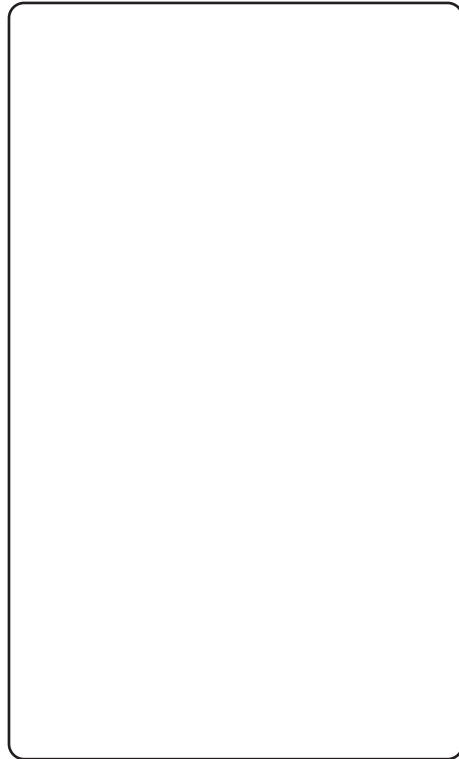
output deck
(face down)

Bubble Sort

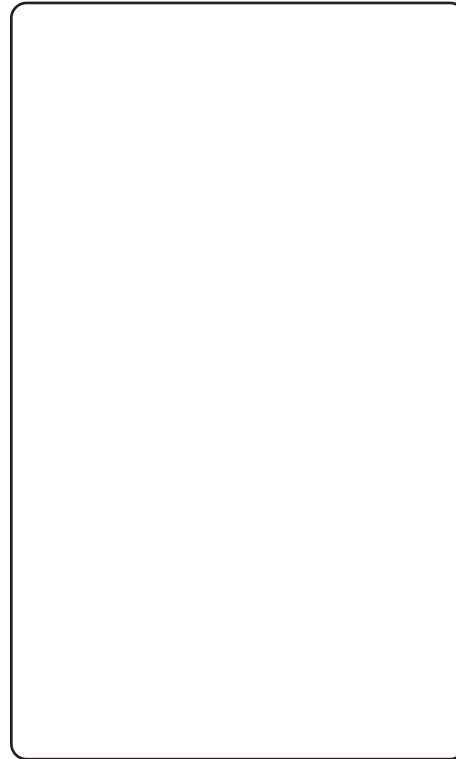
```
repeat
  move top of input deck to right card
  repeat
    move top of input deck to left card
    if the left card is lower than the right card
      then swap left card and right card
    move right card to output deck
    move left card to right card
  until input deck is empty
  move output deck to input
until no swaps performed
```



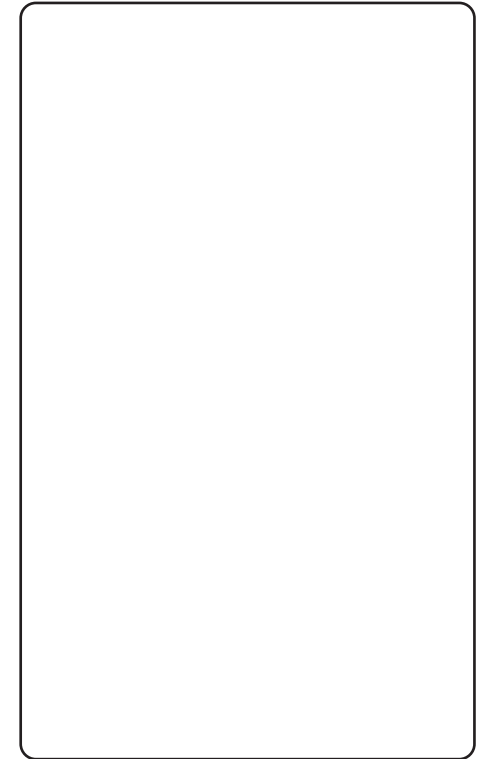
input deck
(face up)



left card
(face up)



right card
(face up)



output deck
(face down)

Quicksort

To quicksort:

move the top of the input deck to the pivot card

repeat

if the top of the input deck is lower than the pivot card

then move the top of the input deck to the left deck

else move the top of the input deck to the right deck

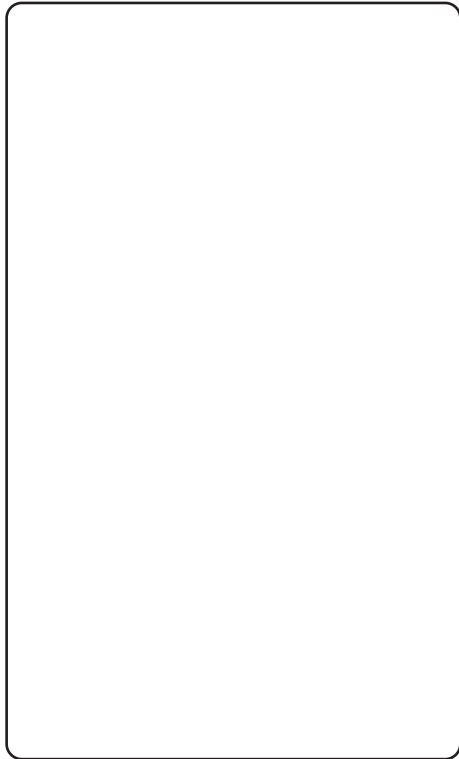
until the input deck is empty

move the pivot card to the left deck

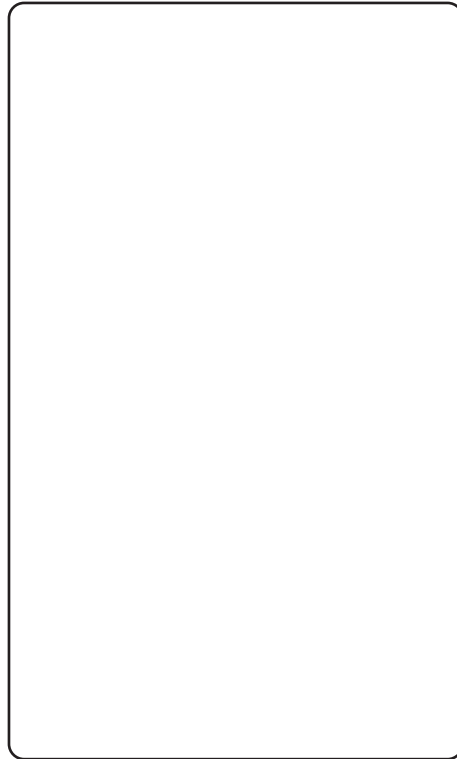
quicksort the left deck

quicksort the right deck

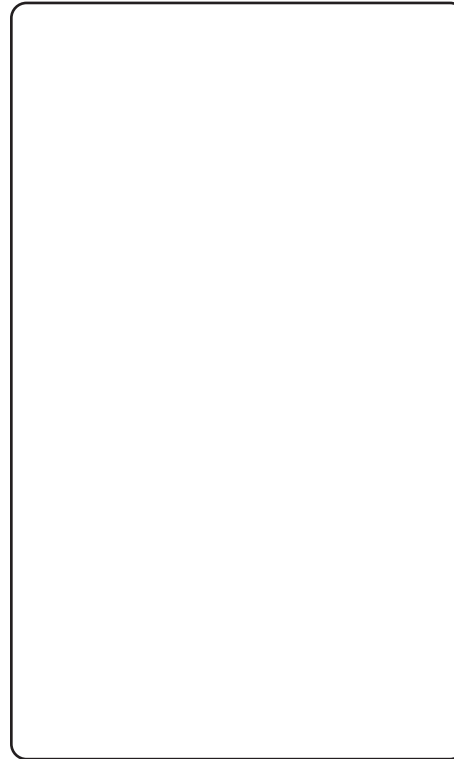
append the right deck to the left deck



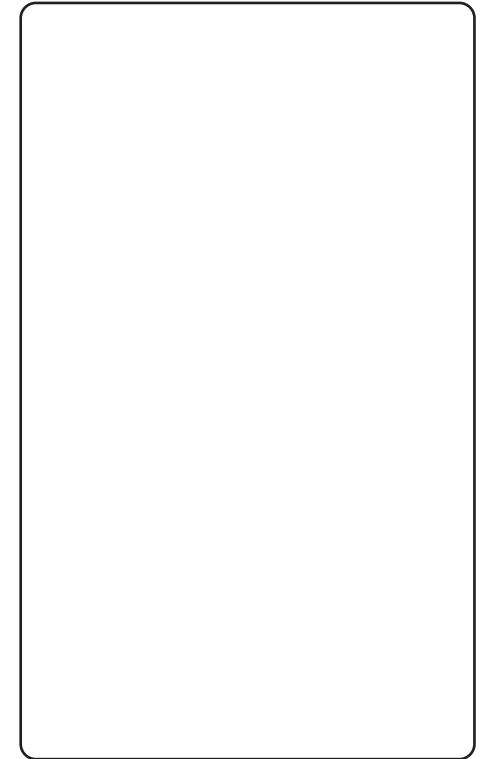
input deck
(face up)



left deck
(face down)



pivot card
(face up)



right deck
(face down)

Merge Sort

To merge sort:

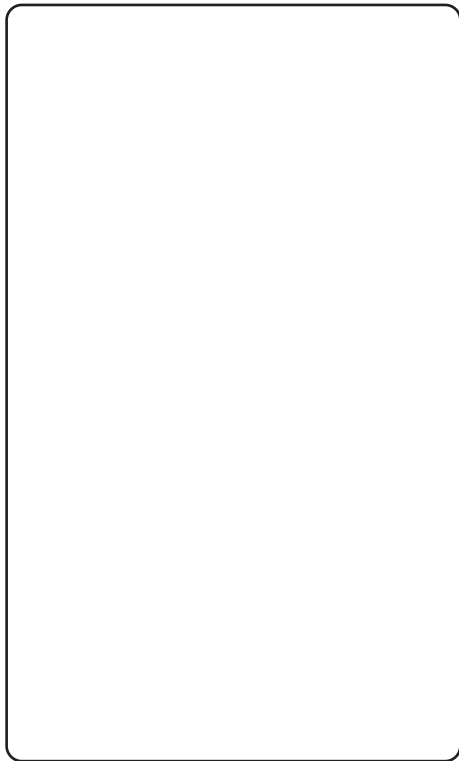
if the input deck contains more than one card
then

split the input deck into a left deck and a right deck

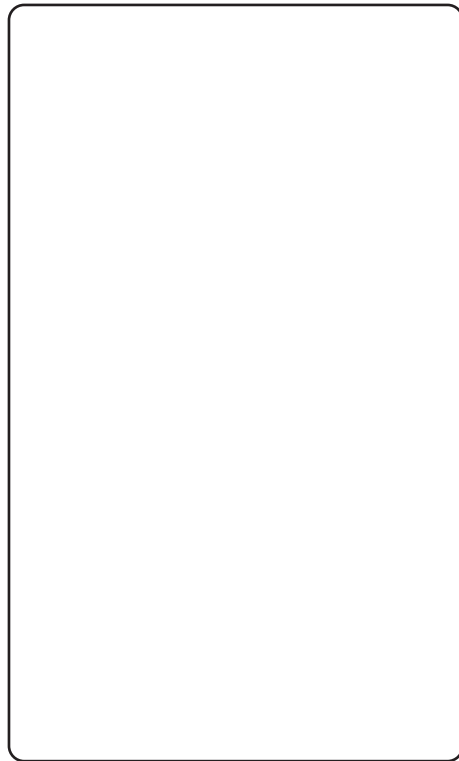
merge sort the left deck

merge sort the right deck

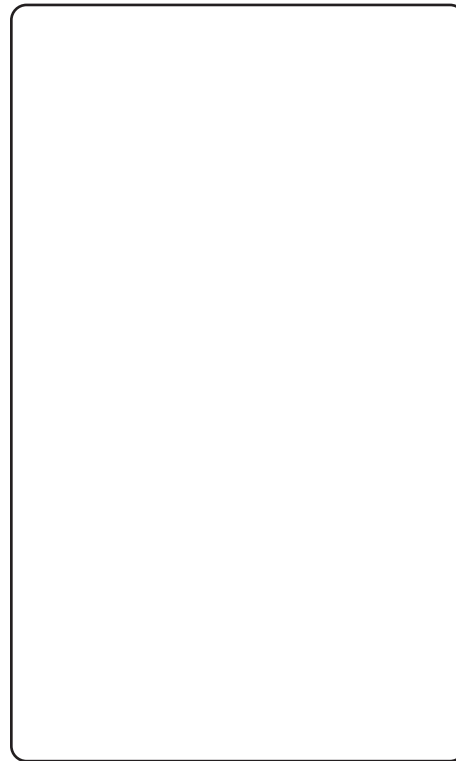
merge the left deck and the right deck



input deck
(face up)



left deck
(face up)



right deck
(face down)

Merge Sort

To merge:

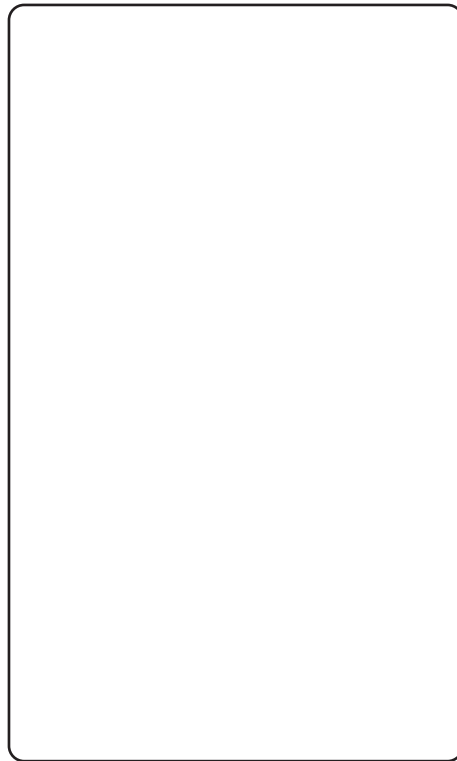
repeat

 if the left deck top is lower than the right deck top

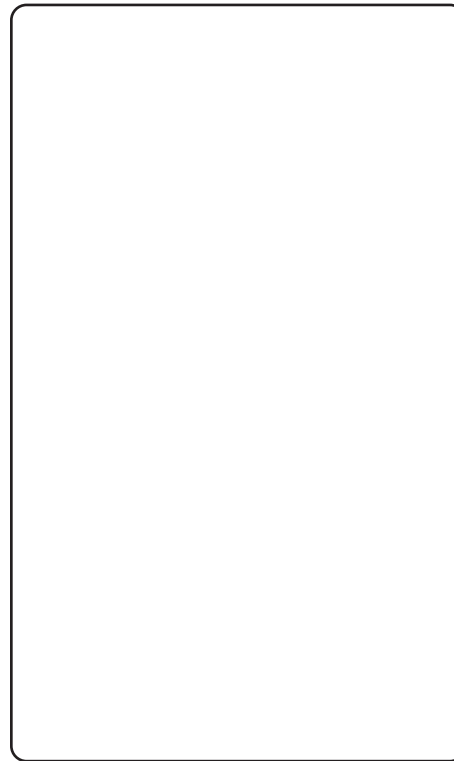
then move the top of the left deck to the output deck

else move the top of the right deck to the output deck

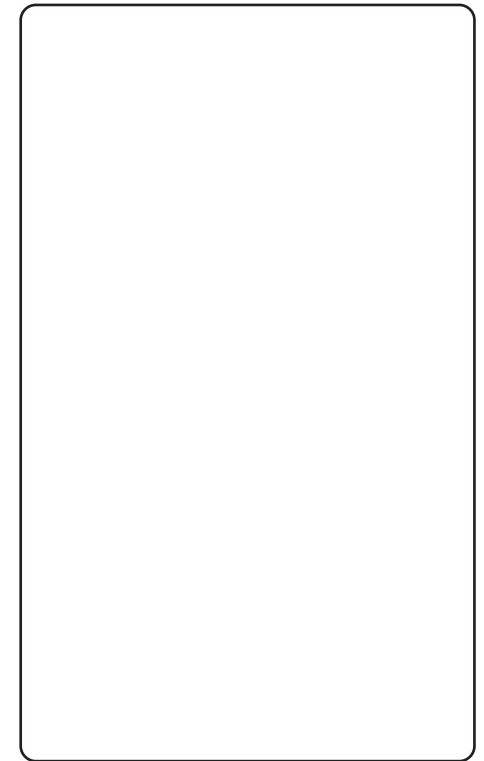
until both the left deck and the right deck are empty



left deck
(face up)



right deck
(face up)



output deck
(face down)

Shuffle Sort

```
repeat  
    shuffle the deck  
until the deck is sorted
```